

CLAIMS:

1. A bucket (12) for a mechanical shovel (10), the bucket having a hollow body (16) provided with an inlet (14) for receiving material into its interior and an outlet (15) for discharging material therefrom, the bucket having, secured to the body, a door (18) which is movable relative to the body between a closed condition in which it closes the outlet of the bucket so that material cannot be discharged therefrom, and an open condition in which it permits discharge under gravity of material from the bucket, the bucket also including at least one buffering device (22) operatively connected between the body and the door of the bucket for buffering movement of the door relative to the body, the bucket being characterized in that each buffering device is in the form of a working fluid-containing telescopically extensible and retractable piston-and-cylinder assembly (22), the piston-and-cylinder assembly including a fluid flow control assembly (72) constructed and arranged to cause fluid flow through the fluid flow assembly during opening of the door and to cause throttled fluid flow through the fluid flow assembly during closing of the door, which throttled flow is throttled relative to the fluid flow during opening of the door, such that movement of the door towards its closed condition is buffered relative to movement of the door towards its open condition.
2. A bucket as claimed in Claim 1, characterized in that the fluid flow control assembly includes a non-return valve (78) permitting flow of fluid through the flow control assembly only during opening of the door, and a throttle device (82) for throttling fluid flow through the flow control assembly during closing of the door.

3. A bucket as claimed in Claim 2, characterized in that the throttle device is constructed to permit adjustment of the fluid flow rate through the flow control assembly, to permit adjustment of the degree of buffering.

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4. A bucket as claimed in Claim 2 or Claim 3, characterized in that the fluid flow control assembly includes a pressure-relief valve (86) for overriding the action of the throttling device when the pressure of the fluid as it flows through the flow control assembly during closing of the door exceeds a predetermined threshold
10 pressure, to discontinue the throttling.

5. A bucket as claimed in any one of the preceding claims, characterized in that the piston-and-cylinder assembly includes a cylinder (38) and a piston (36) longitudinally slidably received in the cylinder, the piston having a piston rod (39) projecting longitudinally from an end of the cylinder and a piston head (42) located in
15 the cylinder and slidably sealingly engaging the wall (43) of the cylinder, two compartments (64, 66) containing working fluid being defined respectively between the piston head and the respective opposite ends of the cylinder.

20 6. A bucket as claimed in Claim 5, characterised in that the two compartments are in flow communication with each other via the fluid flow control assembly, such that working fluid flows from one of the compartments to the other compartment via the flow control assembly in response to any change in length of the piston-and cylinder assembly during movement of the door relative to the body.

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7. A bucket as claimed in Claim 5 or Claim 6, characterized in that the door is hingedly secured to the bucket, such that it hinges between its closed condition and its open condition, with the cylinder and the projecting end of the piston rod respectively being provided with securing formations (52, 62) by means of which the piston-and-cylinder assembly is hingedly secured in position between the body and the door.

8. A bucket as claimed in any one of the preceding claims, characterized in that the fluid flow control assembly is located outside the interior of the cylinder of the piston-and-cylinder assembly.

9. A bucket as claimed in any one of Claims 1 – 7 inclusive, characterized in that the fluid flow control assembly is located in the interior of the cylinder of the piston-and-cylinder assembly.

10. A bucket as claimed in any one of the preceding claims, characterized in that the bucket includes a releasable latch (19) for retaining the door in its closed condition.

11. A bucket as claimed in any one of the preceding claims, characterized in that the piston-and-cylinder assembly is operatively connected between the body and the door such that opening of the door causes the piston-and-cylinder assembly to retract and closing of the door causes it to extend.

12. A bucket as claimed in any one of the preceding claims, characterized in that the piston-and-cylinder assembly is a hydraulic assembly, the working fluid being a liquid.